CLAIMS

1. An RF treatment apparatus, comprising:

a catheter including a catheter lumen;

a removable needle electrode positioned in the catheter lumen in a fixed relationship to the catheter, the treatment needle electrode including a needle lumen and a needle electrode distal end;

a return electrode;

a removable introducer slidably positioned in the treatment needle lumen, the introducer including an introducer distal end;

a first sensor positioned on a surface of the needle electrode or the introducer;

an RF power source coupled to the treatment needle electrode; and

resources associated with the first thermal sensor, return electrode and the RF power source for maintaining a selected power at the electrode independent of changes in current or voltage.

2. The RF treatment device of claim 1, further comprising:

an infusion device including an infusion device lumen, the catheter being at least partially positioned in the infusion lumen and removable therefrom.

3. The RF treatment apparatus of claim 1, further comprising:

an insulator, with an insulator distal end, positioned in the catheter lumen in a surrounding relationship to the needle electrode, the insulator being slidably positioned along a longitudinal axis of the treatment needle electrode to define a needle electrode conductive surface beginning at the insulator distal end;

4. The RF treatment apparatus of claim 1, wherein the first sensor is positioned at the introducer distal end.

5. The RF treatment apparatus of claim 3, further comprising:

a second sensor associated with the resources and positioned on a surface of the insulator.

6. The RF treatment apparatus of claim 1, wherein the needle electrode distal end is sharpened.

7. The RF treatment apparatus of claim 6, wherein the introducer distal end is sharpened.

8. The RF treatment apparatus of claim 7, wherein the introducer distal end is substantially flush with the needle electrode distal end when positioned at the treatment needle electrode distal end.

9. The RF treatment apparatus of claim 1, wherein the needle electrode includes a plurality of fluid distribution ports.

10. The RF treatment apparatus of claim 1, wherein the needle electrode is operated in a bipolar mode.

11. An RF treatment apparatus, comprising:

a catheter including a catheter lumen;

an insert removably positioned in the catheter lumen in a fixed relationship to the catheter, the insert including an insert lumen and an insert distal end;

an removable electrode positioned in the insert, the electrode having an electrode distal end that advances out of the insert distal end and introduces RF treatment energy along a conductive surface of the electrode;

a return electrode;

a first sensor positioned on an electrode or insert surface;

an RF power source coupled to the electrode; and

resources associated with the thermal sensor, return electrode and the RF power source for maintaining a selected power at the electrode independent of changes in voltage or current.

12. The RF treatment apparatus of claim 11, further comprising:

a removable introducer slidably positioned in the insert lumen, the introducer having an introducer distal end that reduces an entry of material into the insert distal end as the insert is advanced through a body structure.

13. The RF treatment apparatus of claim 11, further comprising:

an insulator, with an insulator distal end, positioned in a surrounding relationship to the electrode, the insulator being slidable along a longitudinal axis of the needle electrode to define an electrode conductive surface beginning at the insulator distal end.

14. The RF treatment apparatus of claim 11, wherein the electrode is advanced out of the insert distal end in a lateral direction relative to a longitudinal axis of the insert.

15. The RF treatment apparatus of claim 11, wherein the first sensor is positioned on an electrode surface.

16. The RF treatment apparatus of claim 11, further comprising:

a second sensor associated with the resources and positioned on an insulator surface.

17. The RF treatment apparatus of claim 11, further comprising:

a transponder positioned on an electrode surface.

18. The RF treatment apparatus of claim 17, wherein the transponder is positioned on the electrode distal end.

19. The RF treatment apparatus of claim 11, wherein the electrode is hollow and includes a plurality of fluid distribution ports.

20. The RF treatment apparatus of claim 11, further comprising:

an infusion device including an infusion device lumen, the catheter being at least partially positioned in the infusion device lumen and removable therefrom.

21. The RF treatment apparatus of claim 11, wherein the electrode distal end is sharpened.

22. The RF treatment apparatus of claim 11, wherein the electrode operates in a bipolar mode.

23. An RF treatment apparatus, comprising:

an infusion device including an infusion device lumen;

a catheter including a catheter lumen, the catheter being at least partially positioned in the infusion device lumen and removable therefrom;

a removable needle electrode positioned in the catheter lumen in a fixed relationship to the catheter, the needle electrode including a needle lumen;

a return electrode;

an insulator, with an insulator distal end, in a surrounding relationship to the needle electrode, the insulator being slidably positioned along a longitudinal axis of the needle electrode to define a needle electrode conductive surface beginning at the insulator distal end;

a first sensor positioned on an electrode or insulator surface;

an RF power source coupled to the treatment needle electrode; and

resources associated with the first thermal sensor, return electrode and the RF power source for maintaining a selected power at the electrode independent of changes in voltage or current.

24. The RF treatment apparatus of claim 23, further comprising:

a removable introducer slidably positioned in the needle electrode lumen with an introducer distal end.

25. The RF treatment apparatus of claim 24, further comprising:

a second sensor associated with the resources and positioned on a surface of the introducer.

26. The RF treatment apparatus of claim 23, wherein the catheter is removable from the infusion device, while the infusion device remains positioned in a body structure.

27. The RF treatment apparatus of claim 24, wherein the catheter, treatment needle electrode, insulator and removable introducer are all removable from the infusion device lumen, while the infusion device remains positioned in a body structure.

28. The RF treatment apparatus of claim 24, wherein the needle electrode distal end is sharpened.

29. The RF treatment apparatus of claim 28, wherein the introducer distal end is sharpened.

30. The RF treatment apparatus of claim 29, wherein the introducer distal end is flush with the treatment needle electrode distal end when positioned at the treatment needle electrode distal end.

31. The RF treatment apparatus of claim 23, wherein the needle electrode includes a pluraility of fluid distribution ports.

32. The RF treatment apparatus of claim 23, wherein the needle electrode operates in a bipolar mode.

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